killed in the fields." Electric interurban lines suffered from washouts and wire trouble.

Kane County: During the storm of the 19th buildings were struck by lightning in Aurora, St. Charles, and Elgin. Some fires resulted, including a $40,000 loss to the Elgin Academy. A second storm at Aurora on the 15th caused more damage from lightning and fire. Considerable stock was killed throughout the county by lightning and barn fires. Electric railways and telephone lines suffered.

In central Illinois the worst storms occurred on the 7th and 9th.

Storms of the 7th: At Chandlerville, in Mason County, two lumbermen sleeping in a tent were killed by a falling tree. In Macoupin County much damage was caused by wind and lightning. Many animals were killed, farm buildings were damaged or destroyed, and the corn crop was injured. The interurban wires were broken by falling limbs. At Pana and Edinburg lightning struck barns and caused fires, with loss of grain and stock. A severe storm at Litchfield damaged trees, wires, and buildings. In the vicinity of Springfield a house and barn were struck by lightning, the barn being destroyed. Considerable damage resulted to traction, telegraph, and telephone lines and heavily laden fruit trees. At White Hall much damage resulted from wind; buildings, trees, cornfields, gardens, and orchards all suffering. A 4-year old child, living at Jerseyville, was killed by a live wire, and several persons were more or less injured in the path of the storm through Green and Macoupin Counties.

A storm on August 9 caused damage from wind and lightning in Sangamon, McLean, and Macon Counties. Telephone wires were all down in the vicinity of Springfield. Mr. S. P. Peterson, observer in charge at La Salle, Ill., writes: "During the night of the 11th and 12th a very severe thunderstorm occurred. Many buildings in this vicinity were struck by lightning and a few were burned to the ground. The heavy rainfall attending this storm, 2.22 inches, washed out a portion of the Rock Island tracks near Marquette, Ill., causing a wreck."

REPORT OF SEVERE LOCAL STORM, GALENA, ILL., ON AUGUST 16, 1911.

[By J. H. SPENCER, Local Forecaster, United States Weather Bureau, Dubuque, Iowa.]

This local storm was one of the severest ever recorded in this immediate section of the country, and it seems almost a miracle that no one was killed. The storm clouds were low and black, and moved swiftly. Observers in the path of the storm who saw it approaching say that buildings and other objects seemed enveloped in black smoke, and that the appearance of the storm in general was terrifying. The storm entered the city at its western outskirts about 4.30 p. m., and it was severe only for a few minutes—perhaps 10. It came from a west-northwest direction, and passed over the southern section of the city. Its path was about one-half mile wide and perhaps 2 miles long. It did not do much damage until it reached the river, when, according to some observers, it united with another storm of less severity that was moving down the Galena River Valley from the northeast. The storm then moved forward with increased force, and for a distance of nearly 2,000 feet it was destructive. No funnel-shaped cloud was visible, and trees in Grant Park and elsewhere were laid down in the same direction as the storm was traveling. A number of windows and doors were blown inward, but none outward. Roofs, barns, sheds, branches from trees, etc., were carried slightly south of east as a rule.

At the Grant Memorial Home, however, there was some evidence of rotary motion. A large section of the massive roof of this brick building was taken off by the wind and carried through large trees for a distance of 175 to 200 feet; it was about 30 feet wide by 40 feet long and weighed many tons. Part of it was blown nearly northeast, where it struck and practically destroyed the frame McCarthy dwelling, in which several persons were living at the time; no one was seriously injured. Another section of the roof, comprising the tin and some timbers, was carried slightly south of east across the street into a yard, where it demolished a fence, several trees, and barely missed a dwelling. A third and smaller section struck the Avery house, the roof of which was damaged, either from this cause or by the wind. The Avery home is midway between the McCarthy home and the yard referred to. The writer saw timbers from the Grant roof that were 16 feet long and 4 by 8 inches or 8 by 8 inches; there were several of them, and none landed less than 175 feet from the building.

A 30 by 70 foot section of the roof of the Illinois Central freight house was blown off. Several windows and doors of this brick building were blown inward, and the walls were cracked in several places. A 16-foot board from the freight house was taken through the air for a distance of 500 to 600 feet and dashed into the shingle roof of the town hall.

On the other side of the river the chimneys and roof of the Burlington Hotel were damaged; the air dome, a large tent, was blown over and badly torn; and a portion of the brick walls of a blacksmith shop was blown over.

Telephone and telegraph companies suffered much loss. Scores of poles and quantities of wire were blown down.

A few large and sound trees were uprooted. In Grant Park one elm 15 inches in diameter was forced halfway to the ground, several box elders and catalpas were uprooted, and severe damage was done to many other trees. At 702 Park Avenue a box elder 23 years old and 6 feet in circumference was uprooted and thrown to the ground. Hundreds of trees throughout the area covered by the storm suffered severe damage. After the storm, Spring Street, in particular, was practically impassable to teams, owing to fallen trees, poles, etc.

There was heavy rainfall, but it was of brief duration. Hail fell during the storm, but the stones were too small to cause damage. The lightning was severe, and it struck the Meller residence on Hill Street, causing damage to the extent of $150.

The total loss from the storm is estimated at not less than $5,000.

ENGINEERING NOTES.

[Work being done in Iowa by United States and Iowa Geological Surveys.]

Mr. Robert Follansbee, district engineer, water resources branch, United States Geological Survey, St. Paul, Minn., has kindly furnished the following, relative to work being done in Iowa by the Iowa Geological Survey, in cooperation with the United States Geological Survey, in connection with the conservation and development of the water-power possibilities in that State:

The Iowa Geological Survey, under the directorship of Prof. Geo. F. Kay, of Iowa City, has recently entered into cooperation with the United States Geological Survey for the purpose of studying the flow of the more important rivers in the State. Prior to 1906 a number of stations were maintained by the United States Geological Survey, but with one exception they were discontinued in that year for lack of funds. Within the past year or two, water-power possibilities have aroused interest in Iowa and the State survey has been anxious to prepare a report on this subject. Preliminary investigations, however, showed the need for actual records of river discharge before a definite report could be made and so this has been postponed for some time, pending the compilation of stream-flow data. As a result, the following stations have been established: Iowa River, near Iowa Falls; Des Moines, near Fort Dodge; Des Moines, at Keosauqua; Cedar, at Cedar Rapids; Wapsipinicon, at Stone City. The last three stations were orginally established by the United States Geological Survey prior to 1906 and records of varying length are available for them. For the Cedar and Wapsipinicon, the records have been continued uninterruptedly since 1903.

Not only will the records of the Iowa Rivers be of value for water-power purposes but also for flood prevention, as the river valleys are subject to severe overflow. Also the subject of the pollution of the streams by sewage is becoming increasingly important and in this connection the low-water records are valuable in indicating the allowable degree of pollution of the streams.